Rules and Regulations for the Classification of Naval Ships, January 2010

Notice No. 2

Effective Date of Latest Amendments:

See page 1

Issue date: August 2010

RULES AND REGULATIONS FOR THE CLASSIFICATION OF NAVAL SHIPS, *January 2010*

Notice No. 2

This Notice contains amendments within the following Sections of the *Rules and Regulations for the Classification of Naval Ships, January 2010.* The amendments are effective on the dates shown:

Volume	***Part***	***Chapter***	***Section***	***Effective date***
1	1	3	1	1 January 2011
1	3	2	4	1 January 2011
1	3	3	2	1 January 2011
1	3	4	8	1 January 2011
1	4	1	5	1 January 2011
1	5	3	5, 6	1 January 2011
1	6	3	1, 16	1 January 2011
1	6	6	2	1 January 2011
3	1	7	1	1 January 2011

It will be noted that the amendments also include corrigenda, which are effective from the date of this Notice.

The *Rules and Regulations for the Classification of Naval Ships, January 2010* are to be read in conjunction with this Notice No. 2. The status of the Rules is now:

Rules for Naval Ships	Effective date:	January 2010
Notice No. 1	Effective date:	1 March 2010 & Corrigenda
Notice No. 2	Effective date:	1 January 2011

Volume 1, Part 1, Chapter 3

Periodical Survey Regulations

Effective date 1 January 2011

■ *Section 1* General

1.1 Frequency of surveys

1.1.1 The requirements of this Chapter are applicable to the Periodical Surveys set out in Ch 2,4.5. Except as amended at the discretion of the Committee, the periods between such surveys are as follows:

(a) Annual Surveys – ~~annually within three months of the anniversary date~~ as required by Ch 2,4.5.1.
(b) Intermediate Surveys – ~~in place of the third or fourth Annual Survey~~ as required by Ch 2,4.5.2.
(c) Docking Surveys – ~~at six-yearly intervals concurrent with Special Survey, and in lieu of In-water Survey~~ as required by Ch 2,4.5.3.
(d) In-water Surveys – ~~concurrent with the Intermediate Survey~~ *see* Ch 2,4.5.5.
(e) Special Surveys ~~at six-yearly intervals~~, *see* Ch 2,4.5.6. For alternative arrangements, *see also* Ch 2,4.5.10, 4.5.11, 4.5.12 and 1.1.2.
(f) Complete Surveys of machinery at six yearly intervals, *see* Ch 2,4.5.14.

Volume 1, Part 3, Chapter 2

Ship Design

Effective date 1 January 2011

■ *Section 4* Bulkhead arrangements

4.7 Watertight doors and hatches in watertight subdivision boundaries below the vertical extent of watertight integrity

4.7.6 Watertight doors which are intended to be used ~~while~~ whilst at sea are to be;

- of the sliding type;
- capable of being remotely closed from the bridge;
- are not to be capable of being opened remotely from the bridge.

An audible alarm is to be provided at the doors' closure. The power, control and indicators are to be operable in the event of main power failure. Particular care is to be paid to minimising the effect of control system failure.

Volume 1, Part 3, Chapter 3
Ship Control Systems

Effective date 1 January 2011

■ *Section 2* **Rudders**

2.1 General

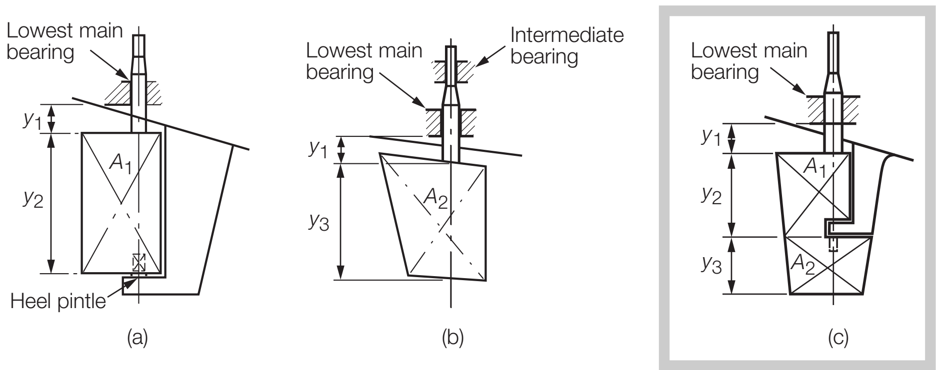

Fig. 3.2.1 Rudder types

2.10 Centre of pressure

Table 3.2.5 Position of centre of pressure
(*Part only shown*)

NOTE For rectangular strips the centre of pressure is to be assumed to be located as follows: (a) 0,33$e_h x_S$ abaft leading edge of strip for ahead condition. (b) 0,25x_S from aft edge of strip for astern condition.

2.12 Rudder torque, Q_R

2.12.1 The rudder torque, Q_R, for rudders without cut-outs in the ahead condition may be determined from the following formula:

$Q_R = F_R x_{PF}$ kNm

where

F_R = rudder force, in kN

x_{PF} = horizontal distance from the centreline of the rudder pintles or axle, to the centre of pressure in the ahead condition, in metres, *see* Table 3.2.5.

2.12.2 The rudder torque, Q_R, for rudders without cut-outs in the astern condition may be determined from the following formula:

$Q_R = F_R x_{PA}$ kNm

where

x_{PA} = horizontal distance from the centreline of the rudder pintles or axle, to the centre of pressure in the astern condition, in metres, *see* Table 3.2.5

F_R = rudder force, in kN.

2.12.3 For rudders with cut-outs the rudder area, A_R, used in the derivation of the rudder torque may be divided into two rectangular or trapezoidal parts with areas A_1 and A_2, so that $A_R = A_1 + A_2$, *see* Fig. 3.2.1.

2.12.4 The rudder torque, Q_R, for rudders with cut-outs in the ahead condition may be determined from the following formula:

$Q_R = Q_1 + Q_2$ kNm

where

$Q_1 = F_{R1}\, x_{PF1}$ kNm

$Q_2 = F_{R2}\, x_{PF2}$ kNm

$$F_{R1} = F_{RF}\,\frac{A_1}{A_R} \text{ kN}$$

$$F_{R2} = F_{RF}\,\frac{A_2}{A_R} \text{ kN}$$

F_{RF} = rudder force in the ahead condition determined from 2.2.1, in kN

$x_{PF1} = b_{R1}\,(\alpha - k_1)$, in metres

$x_{PF2} = b_{R2}\,(\alpha - k_2)$, in metres

α = as given in Table 3.2.6 for the ahead condition

$$k_1 = \frac{A_{1f}}{A_1}$$

$$k_2 = \frac{A_{2f}}{A_2}$$

A_{1f}, A_{2f} are shown in Fig. 3.2.4.

2.12.5 The rudder torque, Q_R, for rudders with cut-outs in the astern condition may be determined from the following formula:

$Q_R = Q_1 + Q_2$ kNm

where

$Q_1 = F_{R1}\, x_{PA1}$ kNm

$Q_2 = F_{R2}\, x_{PA2}$ kNm

$F_{R1} = F_{RA} \dfrac{A_1}{A_R}$ kN

$F_{R2} = F_{RA} \dfrac{A_2}{A_R}$ kN

F_{RA} = rudder force in the astern condition determined from 2.2.1, in kN

$x_{PA1} = b_{R1}\,(\alpha - k_1)$, in metres

$x_{PA2} = b_{R2}\,(\alpha - k_2)$, in metres

α = as given in Table 3.2.6 for the astern condition

$k_1 = \dfrac{A_{1f}}{A_1}$

$k_2 = \dfrac{A_{2f}}{A_2}$

A_{1f}, A_{2f} are shown in Fig. 3.2.4.

Table 3.2.7 Coefficient, α

Condition	Behind fixed structure (*see* Note)	Not behind a fixed structure
Ahead	0,25	0,33
Astern	0,55	0,66

NOTE
For rudder parts behind a fixed structure such as a rudder horn.

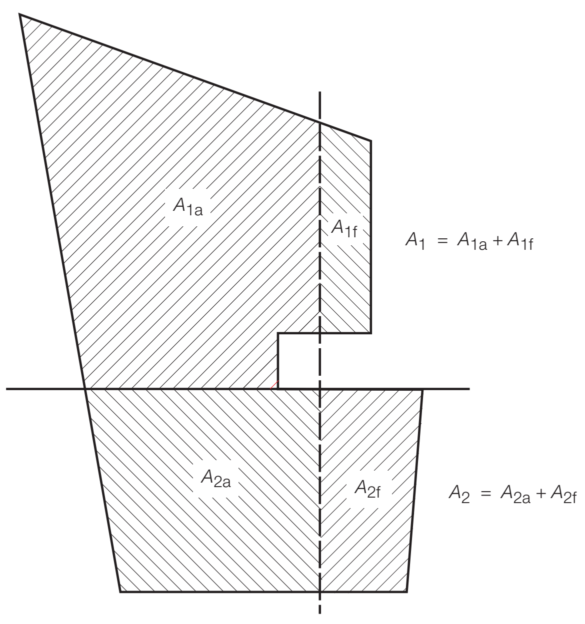

Fig. 3.2.4 Rudder areas

Existing Figs. 3.2.4 *and* 3.2.5 *are to be renumbered* Figs. 3.2.5 *and* 3.2.6.

2.13 Rudder bending moment, M_R

2.13.3 For semi-spade/mariner rudders, Type (c) in Fig. 3.2.1, the bending moment, M_R, may be determined from the following formula:

$$M_R = F_R \frac{h_R}{10\left(1 + \dfrac{b_R^{\,2}}{A_R}\right)} \text{ kNm}$$

F_R = rudder force determined from 2.2.1, in kN

h_R = mean height of rudder, in metres, *see* Fig. 3.2.3

b_R = mean breadth of rudder, in metres, *see* Fig. 3.2.3.

2.18 Double plate rudders

2.18.5 On semi-spade/mariner type rudders the following items are to be complied with:

(a) The main vertical web forming the mainpiece is to be continuous over the full depth of the rudder.

(b) The thickness of the main vertical web is to be not less than two times the thickness required by Table 3.2.8(5) from the top of the rudder to the lower pintle. The thickness is to be not less than required by Table 3.2.8(5) from the lower pintle to approximately a point midway between the lower pintle and bottom of the rudder. Below this the thickness, t_2, is to be not less than the thickness required by Table 3.2.8(2). *See* Fig. 3.2.7.

(c) Where an additional continuous main vertical web is arranged to form an efficient box mainpiece structure, the thickness of each web is to be not less than that required by Table 3.2.8(5) from the top of the rudder to approximately a point midway between the lower pintle and bottom of the rudder. Below this the thickness, t_2, is not to be less than that required by Table 3.2.8(2).

(d) The internal radius, r, of the cut-out for the rudder pintle is to be as large as practicable. *See* Fig. 3.2.7.

(e) To reduce the notch effect at the corners of the cut-out for the lower pintle, an insert plate 1,6 times the Rule thickness of the side plating is to be fitted. The insert plate is to extend aft of the main vertical web and to have well rounded corners.

2.23 Pintles

2.23.7 The bottom pintle on semi-spade (Mariner) type rudders are:

(a) if inserted into their sockets from below, to be keyed to the rudder or sternframe as appropriate or to be hydraulically assembled, with the nut adequately locked, or

(b) if inserted into their sockets from above, to be provided with an appropriate locking device, the nut being adequately secured.

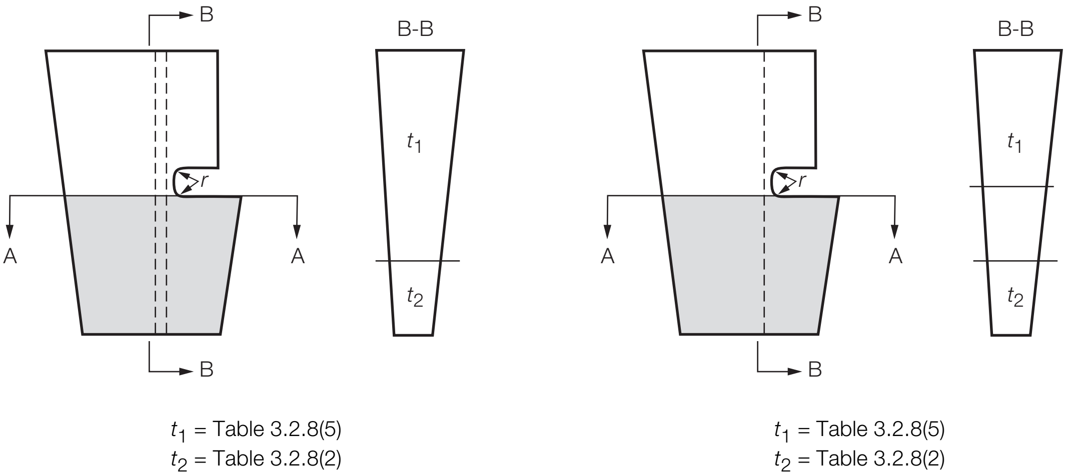

Fig. 3.2.7 Main vertical web thickness

Existing Figs. 3.2.6, 3.2.7 *and* 3.2.8 *are to be renumbered* Figs. 3.2.8, 3.2.9 *and* 3.2.10.

(*Part only shown*)

Table ~~3.2.7~~ 3.2.8 Double plated rudder construction

Item	Requirement
(5) Mainpiece – fabricated rectangular	Breadth and width $\geq d_s$ $t_M = (8{,}5 + 0{,}56\sqrt{d_s})$ mm Minimum fore and aft extent of side plating = $0{,}2x_B$ Stress due to bending ~~≤ 78,0 N/mm²~~ ,*see* Table 3.2.9

Existing Tables 3.2.7 *and* 3.2.8 *are to be renumbered* Tables 3.2.8 and 3.2.9

Table 3.2.10 Permissible stresses for rudder blade scantlings

Item	Permissible stresses, in N/mm²		
	Bending stress	Shear stress	Equivalent stress
Rudder blades clear of cut-outs, *see* Fig. 13.2.3	$110K_0$	$50K_0$	$120K_0$
Rudder blades in way of cut-outs, *see* Fig. 13.2.3 and Note	$75K_0$	$50K_0$	$100K_0$
Symbols			
K_0 is as defined in 1.4.3			
NOTE Requirements in way of cut-outs apply to semi-spade/mariner type rudders.			

Existing Tables 3.2.9 *and* 3.2.10 *are to be renumbered* Tables 3.2.11 and 3.2.12

Volume 1, Part 3, Chapters 3 and 4

(part only shown)

Table ~~3.2.9~~ 3.2.11 Pintle requirements

Item	Requirement
(1) Pintle diameter (measured outside liner if fitted)	~~$d_{PL} = \sqrt{\left(\frac{235}{\sigma_o}\right)^m} \left(31 + 4{,}17V\sqrt{A_{PL}}\right)$ mm~~ $d_{PL} = \sqrt{\left(\frac{235}{\sigma_o}\right)^m} \left(31 + 4{,}17V\sqrt{A_{PL} K_2}\right)$ mm For single pintle rudders and lower pintle of semi-spade rudders: $A_{PL} = \frac{A_R C_{CP}}{C_{PL}}$ m^2 but for semi-spade rudders need not be taken greater than A_R Upper pintle on semi-spade rudders: $A_{PL} = A_R \left(1 - \frac{C_{CP}}{C_{PL}}\right)$ m^2 or $0{,}35 A_R$ m^2 whichever is greater
Symbols	
K_2 = rudder profile coefficient, as given in Table 3.2.1	

Volume 1, Part 3, Chapter 4

Closing Arrangements and Outfit

Effective date 1 January 2011

■ *Section 8*
Bulwarks, guard rails, raised walkways and other means for the protection of crew and embarked personnel

8.1 General requirements

8.1.4 Raised walkways which form evacuation routes or assembly areas, or provide for the transfer of heavy equipment, stores or munitions are to comply with the requirements of 8.5.

Existing paragraphs 8.1.4 *to* 8.1.8 *are to be renumbered* 8.1.5 *to* 8.1.9.

8.5 Walkways

8.5.1 Walkways are to be designed to an appropriate National or International Standard agreed with LR and the Naval Authority.

8.5.2 Plans are to be submitted showing the proposed scantlings and arrangements of the structure.

8.5.3 The design loads used are to be as given in Pt 5, Ch 3,5.3.1. Where it is intended that the walkway be used for the transfer or storage of equipment or other substantial items the design loads are to be agreed between LR and the Naval Authority considering the loads given in Pt 5, Ch 3,5.3.1.

8.5.4 For the design of the supporting structure of walkways, the applicable self weight of the walkway structure is to be added to the total load derived in 8.5.3.

Volume 1, Part 4, Chapter 1

Military Design

Effective date 1 January 2011

■ *Section 5*

Military design requirements

5.3 Masts and externally mounted sensors or equipment

5.3.2 Plated mast structure is to be treated as superstructure and the structural requirements for superstructure as defined in Tables 3.3.9 and 3.3.10 in Pt 6, Ch 3 for NS1 type vessels and Pt 6, Ch 3,4.8.4 and 4.8.5 for NS2 and NS3 type vessels are to be applied. Minimum requirements are given in Pt 6, Ch 3,2 and Pt 6, Ch 2,2.9.

5.3.3 Pole mast structure is to be designed to be within the allowable stress limits defined in Pt 6, Ch 3,16.

~~*5.3.2*~~ *5.3.4* The excitation of the mast by ship motions, machinery, propellers and equipment is to be specially considered and the designer's calculations are to be submitted. Where possible the designer should avoid mast natural frequencies within ±20 per cent of significant global mast excitation frequencies. Where this is not possible the vibration amplitudes should be calculated to confirm they are within acceptable limits for the mast structure and equipment. In general, ship motions can be estimated from Pt 5, Ch 3,2 ~~and the mast natural frequencies are not to be within a band ±20 per cent of significant excitation frequencies~~. *See also* Pt 6, Ch 2,4.

~~*5.3.3* The effect of ice accretion, see Pt 5, Ch 2, 4, is to be considered when assessing the strength and support structure of masts. Further consideration is to be given to the increased loading caused by ice accretion on the structure, due to ship motions.~~

Existing paragraphs 5.3.4 *to* 5.3.7 *are to be renumbered* 5.3.5 *to* 5.3.8.

~~*5.3.8*~~ *5.3.9* For equipment distributed along the length of the ship, consideration is to be ~~be~~ given to the global stiffness of the ship's hull girder in relation to the alignment tolerances required for the equipment (increasing hull stiffness is not normally an efficient option).

Existing paragraph 5.3.9 *is to be renumbered* 5.3.10.

Volume 1, Part 5, Chapter 3

Local Design Loads

Effective date 1 January 2011

■ *Section 5*

Local design loads for decks and bulkheads

5.3 Pressure on internal decks, P_{in}

5.3.1 The pressure acting on internal decks, P_{in}, not subject to cargo or heavy equipment loads is to be taken as:

P_{in} = 5 kN/m^2 for accommodation spaces
P_{in} = 7,5 kN/m^2 for main evacuation routes
P_{in} = 10 kN/m^2 for workshop spaces
P_{in} = 20 kN/m^2 for store spaces.

■ *Section 6*

Other local loads

6.4 Loads for masts

6.4.1 The inertia forces resulting from the motions of the ship are to be calculated in accordance with Section 2 and combined with the wind force defined below acting in the most onerous direction for the case being considered.

6.4.2 Where applicable the additional inertia forces due to ice accretion are to be derived in accordance with Ch 2,4.6 and included in the calculations.

6.4.3 The wind pressure, p, acting on the structure is given by:

$$p = \frac{V^2}{1630} \quad \text{kN/m}^2$$

where

V = wind speed, in m/s. To be taken as 63 m/s unless otherwise specified.

6.4.4 The wind force, F_w, on the mast structure is given by:

$$F_w = A\,p\,C_f \quad \text{kN}$$

where

A = the effective area of the structure concerned, i.e. the solid area projected on to a plane perpendicular to the wind direction, in m^2

p = wind pressure, in N/m^2

C_f = force coefficient in the direction of the wind, as defined in Table 3.6.1.

Table 3.6.1 Force coefficient (*Cf*)

Type	Description		Aerodynamic slenderness *l/b* or *l/D*					
			5	10	20	30	40	50
Individual members	Rolled sections, rectangles, hollow sections, flat plates, box sections with b or d less than 0,5 m		1,30	1,35	1,60	1,65	1,70	1,80
	Circular sections, where	$DV_s < 6$ m²/s	0,75	0,80	0,90	0,95	1,00	1,10
		$DV_s \geq 6$ m²/s	0,60	0,65	0,70	0,70	0,75	0,80
		b/d						
	Box sections with *b* or *d* greater than 0,5 m	≥2,00	1,55	1,75	1,95	2,10	2,20	
		1,00	1,40	1,55	1,75	1,85	1,90	
		0,50	1,00	1,20	1,30	1,35	1,40	
		0,25	0,80	0,90	0,90	1,00	1,00	
Single lattice frames	Flat sided sections		1,70					
	Circular sections, where	$DV_s < 6$ m²/s	1,20					
		$DV_s \geq 6$ m²/s	0,80					
Plated structure	Plated structures on ground or solid base (air flow beneath structure prevented)		1,10					

Symbols

l = height of mast, in metres
D = diameter of mast, in metres
V_s = wind speed, in m/s
b = breadth of box section, in metres
d = depth of box section, in metres

Volume 1, Part 6, Chapter 3
Scantling Determination

Effective date 1 January 2011

■ *Section 1* General

1.1 Application

1.1.2 All NS1, NS2 and NS3 ships defined in Part 1 are to comply with the minimum requirements of Section 2 and general structural requirements of Sections 5 to ~~15~~16.

■ *Section 16* Masts

16.1 General

16.1.1 This Section may be used to determine the required scantlings for stayed or unstayed single masts of conventional design on NS1, NS2 and NS3 type ships. Additional requirements for masts are given in Pt 4, Ch 1,5.3.

16.2 Pole masts

16.2.1 The maximum allowable combined bending and direct stress in pole masts is not to exceed the value given in Table 3.16.1. The maximum allowable shear stress is not to exceed 0,58 times the value given in Table 3.16.1.

Table 3.16.1 Allowable stresses in masts

Item	Allowable stress, in N/mm^2
(1) Stayed mast:	$0{,}50\sigma_y$
(2) Unstayed mast:	$0{,}55\sigma_y$
(3) Cross trees, outriggers, etc:	$0{,}55\sigma_y$

16.2.2 The forces acting on the mast are to be calculated in accordance with Pt 5, Ch 3,6.4.

16.3 Unstayed masts

16.3.1 The total stress (σ_t) at any particular location is to be taken as:

$$\sigma_t = [(\sigma_b + \sigma_c)^2 + 3q^2]^{1/2} \quad \text{N/mm}^2$$

where

σ_b = the bending stress at that location due to the bending moments acting on the mast

σ_c = the direct compressive stress at that location due to the vertical components of force. In general, the weight of the mast and cross trees may be ignored in this calculation

q = the shear stress due to torque in the mast. The effect of torque need only be considered where cross trees are fitted.

16.3.2 The total stress is to be determined at each change of plate thickness or other change of section along the mast. It is recommended that a plot or table of stress to a base of mast length be prepared.

16.4 Stayed masts

16.4.1 In the absence of stays the mast will deflect under the influence of the imposed forces. Where stays are fitted they will extend under tension, the amount of elongation being related to the deflection of the mast at the point of attachment of the stays. The distribution of forces in the mast and stays may therefore be obtained by consideration of:

(a) The equilibrium between the deflection of the mast and the corresponding elongations of the stays.

(b) The equilibrium between the imposed loads on the mast and the reactions in the mast and the stays.

16.4.2 These calculations are to be made using appropriately defined co-ordinate axes. Attention is drawn to the importance of assigning the correct sign to the angles and dimensions used. Any stay which would be required to work in compression is to be ignored.

16.4.3 Elongation of the stays is to be calculated on the basis of the area enclosed by a circle of diameter equal to the nominal diameter of the rope in association with an effective modulus of elasticity of 61300 N/mm^2 (6250 kgf/mm^2). Consideration will, however, be given to the use of a higher modulus of elasticity where this is demonstrated by suitable tests to be applicable.

16.4.4 The total stress in the mast at any particular location is to be determined. Attention is drawn to the fact that increased stiffness of the mast leads to a rapid increase in stress in the mast with a corresponding reduction in the effectiveness of the stays. It is desirable, therefore, to design the mast for the required section modulus in association with the least practicable moment of inertia.

16.4.5 Wire rope stays are to be in one length and their construction is to comply with the requirements of Chapter 6 of the *Code for Lifting Appliances in a Marine Environment* (LAME).

16.4.6 The scantlings of a stay are to be such as to provide the tensile force and elongation to meet these requirements. The breaking load of a stay is to be not less than 3,5 times the maximum calculated force on that stay.

Volume 1, Part 6, Chapter 6
Material and Welding Requirements

Effective date 1 January 2011

■ *Section 2* **Materials**

2.2 Grade of steel

(*Part only shown*)

Table 6.2.1 Material classes and grades

Structural member category	Material class/grade
SECONDARY	
A1. Longitudinal bulkhead strakes, other than belonging to the Primary category A2. Deck plating exposed to weather, other than that belonging to the Primary or Special category A3. Side plating	Class I within 0,4~~L~~ L_R amidships ~~Grade A/AH~~ Class 0 outside 0,4~~L~~ L_R amidships
PRIMARY	
B1. Bottom plating, including keel plate B2. Strength deck plating, excluding that belonging to the Special category, *see* Note 7 B3. Continuous longitudinal members above strength deck B4. Uppermost strake in longitudinal bulkhead	Class II within 0,4~~L~~ L_R amidships ~~Grade A/AH~~ Class 0 outside 0,4~~L~~ L_R amidships
SPECIAL	
C1. Sheerstrake (or rounded gunwale) and stringer plate at strength deck, *see* Note 1 C2. Deck strake at longitudinal bulkhead, *see* Note 1	Class III within 0,4~~L~~ L_R amidships Class II outside 0,4~~L~~ L_R amidships Class I outside 0,6~~L~~ L_R amidships
C3. Strength deck plating at corners of ~~cargo~~ large hatch openings ~~in bulk carriers see 1.1.3, ore carriers,combination carriers and other ships with similar hatch opening configurations~~	Class III within 0,4~~L~~ L_R amidships Class II ~~within rest of cargo region~~ outside 0,6L_R amidships
C4. Bilge strake in ships with double bottom over the full breadth and length less than 150 m, *see* Note 1	Class II within 0,6~~L~~ L_R amidships Class I outside 0,6~~L~~ L_R amidships
C5. Bilge strake in other ships, *see* Note 1	Class III within 0,4~~L~~ L_R amidships Class II outside 0,4~~L~~ L_R amidships Class I outside 0,6~~L~~ L_R amidships
SHIPS WITH LENGTH EXCEEDING 150 m AND SINGLE STRENGTH DECK	
D1. Longitudinal strength members of strength deck plating	Grade B/AH within 0,4~~L~~ L_R amidships
D2. Continuous longitudinal strength members above strength deck	Grade B/AH within 0,4L_R amidships
D3. Single side strakes for ships without inner continuous longitudinal bulkhead(s) between bottom and strength deck	Grade B/AH ~~within cargo region~~ between the aftermost and foremost transverse watertight bulkheads
SHIPS WITH LENGTH EXCEEDING 250 m	
E1. Sheerstrake (or rounded gunwale) and stringer plate at strength deck, *see* Note 1	Grade E/EH within 0,4~~L~~ L_R amidships
E2. Bilge strake, *see* Note 1	Grade D/DH over its entire length
NOTES 1. Single strakes required to be of Class III or of Grade E/EH and within 0,4~~L~~ L_R amidships are to have breadths not less than 800 + 5~~L~~ L_R mm, but need not be greater than 1800 mm, unless limited by the geometry of the ship's design. 2. In ships with breadth exceeding 70 m, at least three deck strakes in board of the sheerstrake or rounded gunwale, including the stringer plate at the strength deck, are to be of Class III within 0,3L_R to 0,7L_R.	

Volume 3, Part 1, Chapter 7
Replenishment at Sea (RAS) Systems

Effective date 1 January 2011

■ *Section 1* General requirements

1.3 Safety

(*Part only shown*)

1.3.1 Replenishment at sea between two vessels underway (particularly abeam RAS) is classified as the most hazardous peacetime seamanship evolution conducted by the naval and supply ships. It is important that the following areas are considered when designing, building, operating and maintaining RAS systems:

(b) **Handling of Explosives and Bulk Ammunition:** Replenishment of solids ~~includes~~ may include ammunition and explosives classified as UN hazard category 1.1~~, and particular~~. Particular note is ~~required~~ to be taken of the enhanced factors of safety and equipment test periodicities that are required for mechanical handling equipment used for ~~ammunition~~ such purposes.

Cross-References

Section numbering in brackets reflects any Section renumbering necessitated by any of the Notices that update the current version of the Rules for Naval Ships.

Volume 1, Part 3, Chapter 3

2.13.1	*Reference* Fig. 3.2.4. *now reads* Fig. 3.2.5.
2.13.2	*Reference* Fig. 3.2.5. *now reads* Fig. 3.2.6.
2.18.1	*Reference* Table 3.2.7 *now reads* Table 3.2.8
2.20.1	*Reference* Table 3.2.8 *now reads* Table 3.2.9
Table 3.2.9 (*Table 3.2.11*)	*Reference* Fig. 3.2.6. *now reads* Fig. 3.2.8.
2.23.1	*Reference* Table 3.2.9 *now reads* Table 3.2.11
2.23.2	*Reference* Fig. 3.2.6. *now reads* Fig. 3.2.8.
2.23.3	*Reference* Table 3.2.9 *now reads* Table 3.2.11
2.24.1	*Reference* Table 3.2.10 *now reads* Table 3.2.12
2.24.5	*Reference* Fig. 3.2.7. *now reads* Fig. 3.2.9.
2.24.6	*Reference* Fig. 3.2.7. *now reads* Fig. 3.2.9.
Table 3.2.10	*Reference* Fig. 3.2.7. *now reads* Fig. 3.2.9. (*twice*)
2.24.4	*Reference* Fig. 3.2.8. *now reads* Fig. 3.2.10. (*twice*)

Volume 2, Part 4, Chapter 3

4.3.1	*Reference* Table 3.2.10 *now reads* Table 3.2.12

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